ıetic Host and Environmental
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)XIDOREDUCTASE 1 (NQ01) GENOTYPES AND IG-RELATED CANCERS OF THE UPPER AERO-
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ISERM U521, Villejuif, France, Finnish Institute of Finland, Geneva Cancer Registry, Geneva, Switeva, Geneva, Switzerland
/olved in the metabolism of polycyclic aromatic ɔgens in tobacco smoke. Recently, a variant allele ıs found to be associated with a complete loss of ated the potential effect of this polymorphism in ɔd UAT cancers. One hundred and twenty one l cavity/pharynx, 129 patients with cancer of the ontrols, all Caucasian smokers, were included. lly by a PCR-based method. Cancer risks were ıion, adjusting for sex, age, smoking and alcohol ıeterozygous or homozygous variant genotypes higher risk for neither oral/pharynx cancers)R=2.3, 95%CI=0.6–8.2, respectively) nor larynx 2.1 and OR=1.1,95%CI=0.2–5.9, respectively) ygous wild-type genotypes. Moreover, the geno- l by smoking habits. Thus, our study does not :he *NQO1* polymorphism in smoking-related UAT

:ERS: HISTOLOGY, TOBACCO SMOKE EXPO-
ɔ. Kirsti Husgafvel-Pursiainen, Nadejda Jouren- Boffetta, and Simone Benhamou, *Finnish Institute Finland, INSERM U521, Villejuif, France, and Inti ı, France*
ıa became the most common type of lung cancer l in the US, and a similar change has been seen ın, a 500% increase has occurred in lung cancer and the increase in the incidence of lung adeno- ɔmen than among men. We investigated 118 cer cases using p53 mutation as a biomarker. nd 29% of the female cases were mutated. When osure, 0% of non-smokers, 48% of ex-smokers,

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Several investigators have analyzed various smoke related aromatic amines and polycyclic aromatic amines and demonstrated an inverse relationship between pH and reactivity or mutagenicity. Using the Ames test, our initial investigation testing the urine of ten smokers and non-smokers exhibited a trend toward a direct relationship. To confirm the significance of these results, we have expanded our study population and hypothesize that changing the pH of smokers urine might impact the mutagenic outcome. Using the Ames test, the mutagenic activity of smokers and non-smokers urine was evaluated utilizing the Salmonella typhimurium YG1024 microsuspension assay after each urine sample was titrated to a pH of 5.5, 7.0 and 8.2. The data was then analyzed for standard analysis of variance and post hoc multiple comparisons using Fisher's least significant difference method. The 32 smokers included 13 men and 19 women and the 29 non-smokers included 14 men and 15 women. The mean colony count of the smokers (x=224) was significantly higher than the non-smokers (x=83), with a $p<0.0001$. The mean colony counts per plate for the smokers at a pH of 5.5, 7.0 and 8.2 were 192 (+/-98), 231 (+/-134) and 249 (+/-164) respectfully. There was a statistically significant direct relationship between pH and mutagenicity with the greatest benefit observed between a pH of 5.5 and 7.0 ($p=0.0037$). These results represent the first systematic evaluation of smokers urine demonstrating that urine adjusted to a neutral or basic pH resulted in increased mutagenicity. This relationship may contribute to subsequent risk of bladder cancer in smokers.

#146 BIOLOGICAL MONITORING OF THE TOBACCO SMOKE-RELATED EXPOSURE TO ACROLEIN. Gerhard Scherer, G. Krauße, D. Mascher, and E. Schmid, *Analytisch- Biologisches Forschungslabor, Munchen, Germany, and Institute of Analytical Chemistry, Univ of Vienna, Vienna, Austria*

Acrolein is a suspected human carcinogen. Non-occupational exposure is due to tobacco smoke, automobile exhaust, burning fatty food, cyclophosphamide treatment, and also endogenous formation. 3-Hydroxypropylmercapturic acid (HPMA) is an urinary metabolite of acrolein in animals and men. We determined HPMA by a newly developed method using liquid chromatography with tandem mass spectrometry (LC-MS/MS) in the urine of 41 nonsmokers and 27 smokers. Smokers excreted significantly higher amounts of HPMA than nonsmokers (2.81 *vs* 0.81 mg/24h). There was a significant correlation between HPMA excretion and daily cigarette consumption ($r = 0.66$) as well as urinary cotinine ($r = 0.60$). Exposure to environmental tobacco smoke (ETS), as determined by questionnaires, nicotine on personal samplers and urinary cotinine, was not found to influence the HPMA excretion. The GST M1 genotype was not related to the HPMA excretion in neither smoker nor nonsmokers, whereas nonsmokers of the GST T1 'Null' genotype tended to show lower excretion rates of HPMA than nonsmokers carrying the gene (0.46 *vs* 0.88 mg/24h).The difference, however, was not significant.

intensified surveillance, prophylac
However, the effective identificat
malignancies remains a challenge
collection of family history inform
generally suggested to be a req
tained. To date, few studies ha
family history tool in the identificat
study was designed to assess the
families. Family history data coll
detailed genetic histories have b
cancer seen in the Washington U
cology Clinic. The screening fami
with the detailed genetic histories
records) collected by a genetic c
of cancer history reporting and
recognizing women with increas
screening family history tool will
risk. If effective, this tool could b
cation of families with hereditary

#149 POLYMORPHISMS IN CANCER. Sara H Olson, Abul Christine B Ambrosone, Fred F and Marianne Berwick, *Memorial National Ctr for Toxicological Re*

Endometrial cancer is the mo
affect women. CYP1A1 and CYP
are potentially important in estro
mostly to the readily methylate
protective factor in endometrial c
estradiol to a long-acting agon
carcinogenic in a hamster kidne
the generation of free radicals. W
CYP1A1 (ile-val or val-val in exo
(val-val in codon 432, exon 3) w
metrial cancer. We conducted
distribution of polymorphisms
different in women with and wi
from women with endometrioid
spots from women aged >49
(controls). Samples were anony
about these women. PCR ampli
rose gel electrophoresis were ca
(Cancer Research 1995;55:34
CYP1B1. For CYP1A1, 9% of c